



General Certificate of Education
Advanced Level Examination
June 2010

Chemistry

CHM6T/P10/task

Unit 6T A2 Investigative Skills Assignment

Task Sheet

The investigation of an organic compound

Ethanoic acid is manufactured in industry from methanol and carbon monoxide in a multi-step process involving hydrogen iodide. Ethanoic acid is obtained from the reaction mixture by fractional distillation. Methanoic acid is a useful by-product of this process. The compounds in the reaction mixture can be distinguished by test tube reactions which test for specific functional groups.

You are provided with a sample of one of these compounds, labelled **X**, along with samples of ethanoic acid, methanoic acid and methanol. Your task is to complete a series of observation exercises. The results of these exercises will allow you to identify **X**.

Use a separate sample in each of the following tests.

Record what you **observe** in a table of your own design on the Candidate Results Sheet. Where no visible change is observed, write 'no visible change'.

You are **not** required to identify **X** or any of the reaction products in this part of the task.

Wear eye protection at all times.

For the purpose of this task assume that all of the solutions are toxic, flammable and corrosive.

Procedure**Test 1 Test with acidified potassium manganate(VII) solution**

Half fill a 250 cm³ beaker with the hot water provided. Place about 10 drops of **X** in a test tube. Add about 10 drops of acidified potassium manganate(VII) solution and shake the mixture. Stand the test tube in the beaker for about 10 minutes.

Repeat this test replacing **X** with

- ethanoic acid
- methanoic acid
- methanol.

While you are waiting, begin the tests below.

Test 2 Test with methyl orange

Place about 10 drops of **X** in a test tube. Add about 5 drops of methyl orange and shake the mixture.

Repeat this test replacing **X** with

- ethanoic acid
- methanoic acid
- methanol.

Test 3 Test with sodium hydrogencarbonate

Place about 10 drops of **X** in a test tube. Add a small amount of the solid sodium hydrogencarbonate.

Repeat this test replacing **X** with

- ethanoic acid
- methanoic acid
- methanol.

ISA CHM6T/P10 Candidate Results SheetCentre Number

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Teacher Group

Candidate Name Candidate number

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Results

Present your observations in a table of your own design in the space below.

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| For Teacher's use only | | | |
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